ITD Stormwater Management for Designers:

Part VIII: SWPPP Introduction

Agenda

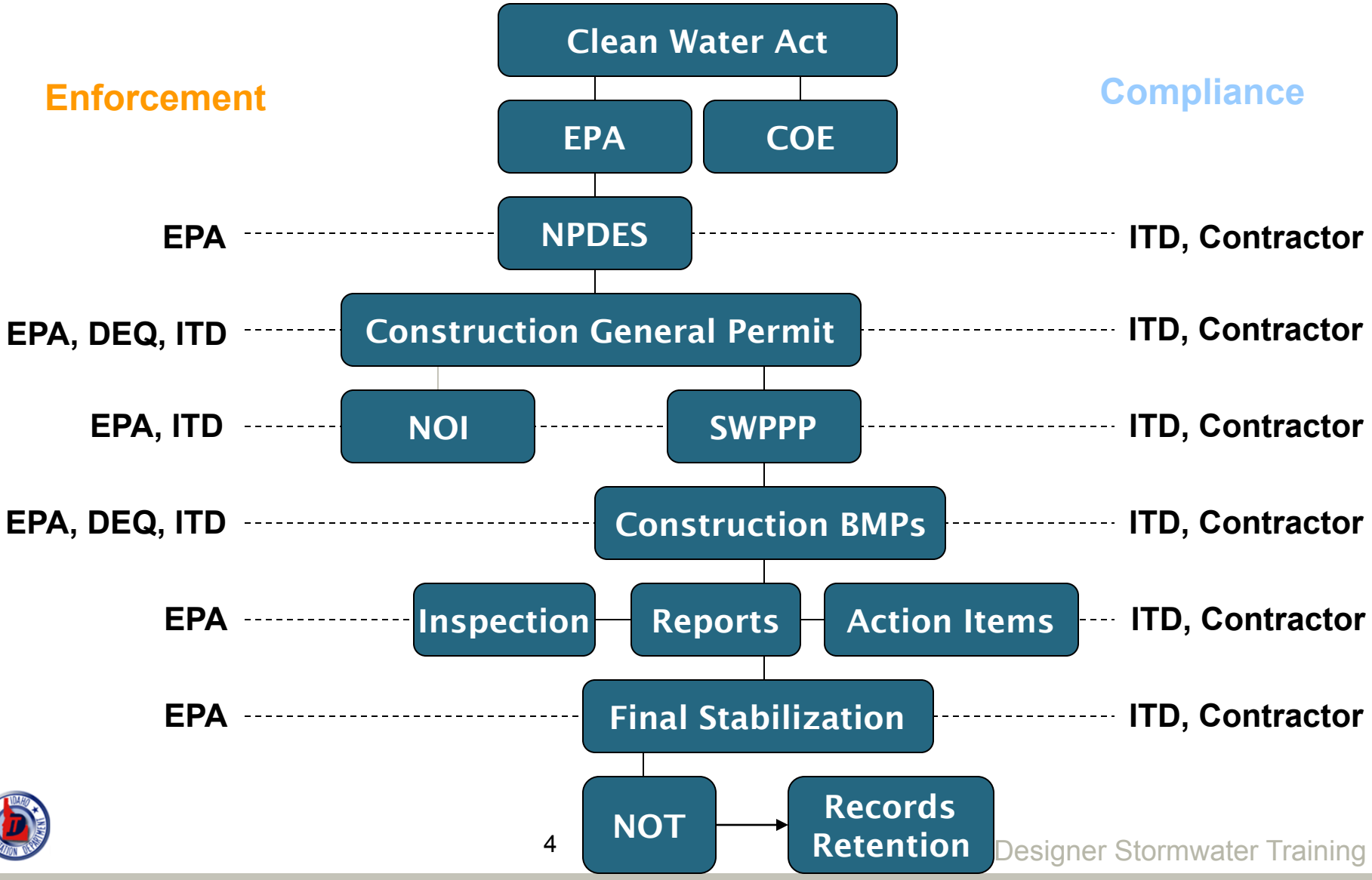
Part VIII: SWPPP Introduction

- Purpose of a SWPPP
- Key Elements of a SWPPP
- SWPPP Review Basics
- SWPPP Approval Requirements

Training Objectives

- Understand the Purpose of a SWPPP
- List and Explain the Key Elements of a SWPPP
- Gain Familiarity with SWPPP Requirements

Overview of Construction Stormwater Management Process



Notice of Intent

- Means of notifying EPA that you intend to begin a project that will disturb more than 1 acre of soil
  - By submitting NOI, project falls under CGP and CD requirements
  - NOI must be submitted and signed by an "Officer of the Company"
  - Note: This will occur after the Pre-Con Meeting

The SWPPP must be completed prior to Submittal of the NOI

What is a ‘Complete’ SWPPP

- SWPPP must present strategies to deal with pollutants from project inception to final stabilization
  - Stormwater Pollution Prevention **PLAN**
  - The **PLAN** can always change
- Note, submitting NOI means ‘Complete’ SWPPP that is ready for inspection by EPA

Requirements for Projects Under One Acre of Disturbed Soil

- Pollutants still need to be managed!
- ITD still requires that an Erosion and Sediment Control Plan (ESCP) be developed
  - Contractors required to develop the ESCP using template provided by ITD
  - See Clean Water Act insert and BMP Manual for requirements

Reminder: Difference between SWPPP and ESCP

What Is a SWPPP?

- Stormwater Pollution Prevention Plan
  - Required by Construction General Permit (see attachments)
  - Detailed description of stormwater pollution prevention measures
  - Required on jobs with soil disturbance of 1 acre or more
  - Jobs with soil disturbance under 1 acre may require a SWPPP
    - Common Plan of Development -- single phase or segment of a larger project
  - Covers Requirements of NPDES Permits

EPA's SWPPP Preparation Guide

- Published in January 2007
- Works hand in hand with EPA SWPPP Template
- Review of Preparation Guide

Chapter 1: Why Use the Guide?

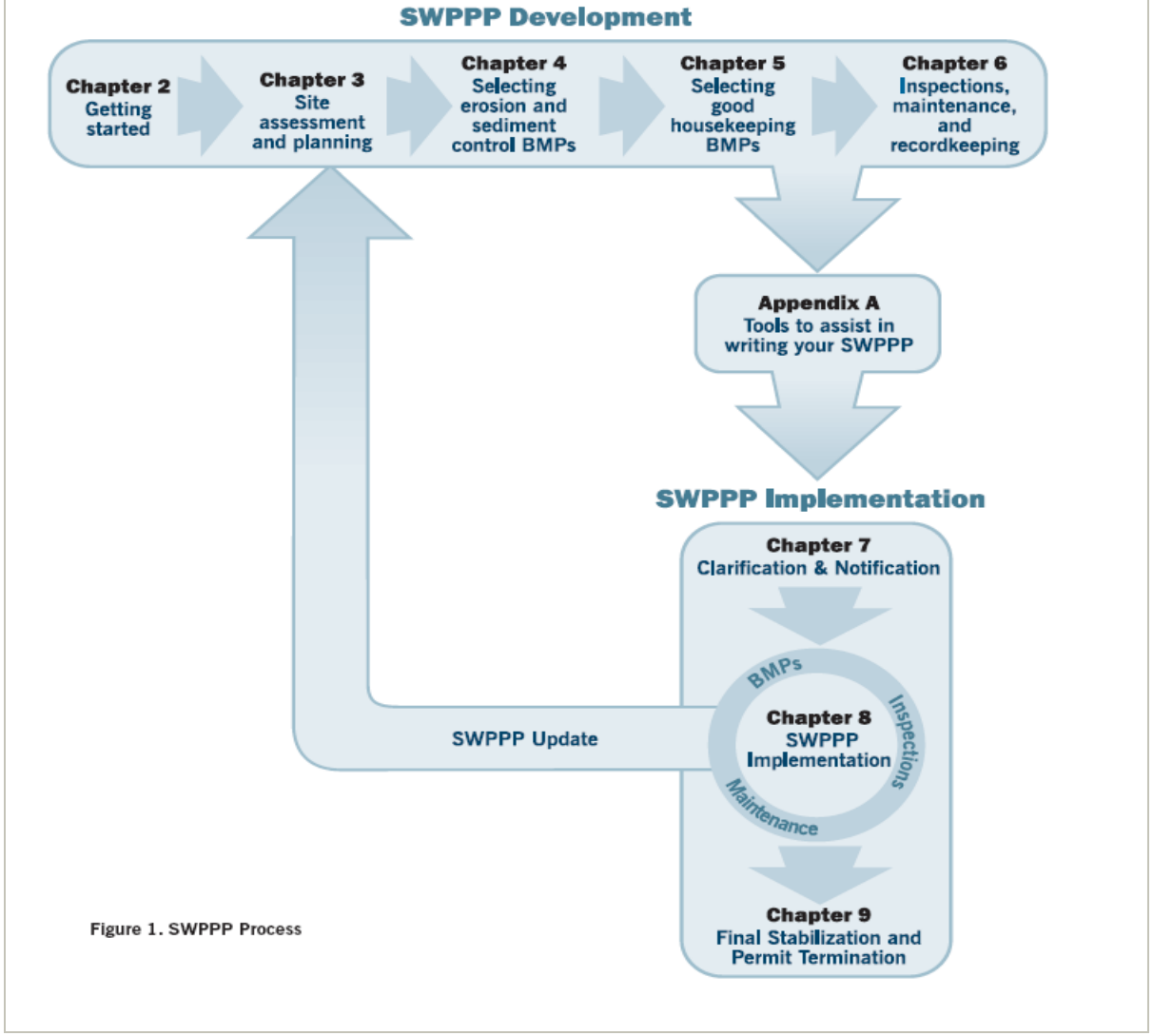


Figure 1. SWPPP Process

Examples of Tools

Take a Closer Look…

What is a SWPPP?

A SWPPP is a site-specific, written document that:

- Identifies potential sources of stormwater pollution at the construction site
- Describes practices to reduce pollutants in stormwater discharges from the construction site. Reduction of pollutants is often achieved by controlling the volume of stormwater runoff (e.g., taking steps to allow stormwater to infiltrate into the soil).
- Identifies procedures the operator will implement to comply with the terms and conditions of a construction general permit

What does this mean to me?

Failure to implement your SWPPP could result in significant fines from EPA or a state environmental agency. Therefore, it is important that you develop your SWPPP to address the specific conditions at your site, fully implement it, and keep it up-to-date to reflect changes at your site.

SWPPP Tip!

Erosion versus Sedimentation

Erosion is the process by which the land surface is worn away by the action of water or wind. Sedimentation is the movement and settling out of suspension of soil particles. It is usually easier and less expensive to prevent erosion than it is to control sediment from leaving a construction site.

Chapter 2: Getting Started

- *Owner and contractor as co-permittees*. The owner retains control over any changes to site plans, SWPPPs, or stormwater conveyance or control designs; but the contractor is responsible for overseeing actual earth disturbing activities and daily implementation of SWPPP and other permit conditions. In this case, which is the most common scenario, both parties may need to apply for permit coverage.

Chapter 3: Site Assessment and Planning

Construction Site Pollutants									
	Primary Pollutant	Other Pollutants							
Areas of Consideration	Sediment	Nutrients	Heavy metals	pH (acids & bases)	Pesticides & herbicides	Oil & grease	Bacteria & viruses	Trash, debris, solids	Other toxic chemicals
Clearing, grading, excavating, and unstabilized areas	✓							✓	
Paving operations	✓							✓	
Concrete washout and waste			✓	✓				✓	
Structure construction/ painting/cleaning		✓		✓				✓	✓
Demolition and debris disposal	✓							✓	
Dewatering operations	✓	✓							
Drilling and blasting operations	✓			✓				✓	
Material delivery and storage	✓	✓	✓	✓	✓	✓		✓	✓
Material use during building process		✓	✓	✓	✓	✓		✓	✓
Solid waste (trash and debris)								✓	✓
Hazardous waste			✓	✓	✓	✓			✓
Contaminated spills		✓	✓	✓	✓	✓			✓
Sanitary/septic waste		✓		✓			✓		✓
Vehicle/equipment fueling and maintenance						✓			✓
Vehicle/equipment use and storage						✓			✓
Landscaping operations	✓	✓						✓	

Figure 6. Example site map.

Chapter 4: Selecting Erosion and Sediment Control BMPs

Erosion Control (keeping the dirt in place) and Minimizing the Impact of Construction

1. Minimize disturbed area and protect natural features and soil
2. Phase construction activity
3. Control stormwater flowing onto and through the project
4. Stabilize soils promptly
5. Protect slopes

Sediment Controls (the second line of defense)

6. Protect storm drain inlets
7. Establish perimeter controls
8. Retain sediment on-site and control dewatering practices
9. Establish stabilized construction exits
10. Inspect and maintain controls

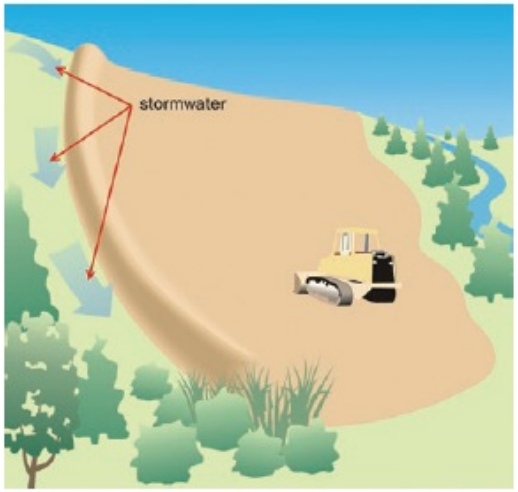


Figure 8. Illustration of a construction berm to divert stormwater away from the disturbed construction area.

Take a Closer Look…

BMPs in Combination

BMPs work much better when they are used in combination. For instance, a silt fence should not be used alone to address a bare slope. An erosion control BMP should be used to stabilize the slope, and the silt fence should serve as the backup BMP.

What does this mean to me?

Wherever possible, rely on erosion controls to keep sediment in place. Back up those erosion controls with sediment controls to ensure that sediment doesn't leave your site. Continually evaluate your BMPs. Are they performing well? Could the addition of a supplemental BMP improve performance? Should you replace a BMP with another one that might work better? Using BMPs in series also gives you some protection in case one BMP should fail.

Chapter 5: Selecting Good Housekeeping BMPs

1. Provide for waste management
2. Establish proper building material staging areas
3. Designate paint and concrete washout areas
4. Establish proper equipment/vehicle fueling and maintenance practices
5. Control equipment/vehicle washing and allowable non-stormwater discharges
6. Develop a spill prevention and response plan

Take a Closer Look…

Non-Stormwater Runoff

A construction site might have sources of runoff that are not generated by stormwater. These non-stormwater discharges include fire hydrant flushing, vehicle or equipment wash water (no detergents!), water used to control dust, and landscape irrigation.

What does this mean to me?

Take steps to infiltrate these sources of uncontaminated water into the ground. You can also route these sources of water to sediment ponds or detention basins or otherwise treat them with appropriate BMPs.

Chapter 6: Inspections, Maintenance, and Recordkeeping

SWPPP Tip!

Selecting BMP Inspectors

A BMP inspection is only as good as the inspector. Therefore, it is important to select qualified personnel to conduct BMP inspections. The SWPPP should identify who has the responsibility for conducting inspections. Personnel selected to conduct inspections should be knowledgeable in the principles and practices of erosion and sediment controls, possess the technical skills to assess conditions at the construction site that could impact stormwater quality, and assess the effectiveness of any sediment and erosion control measures selected.

Several states and other organizations offer training that will help prepare inspectors to accurately evaluate BMPs, decide when maintenance is appropriate, or when a different BMP should be substituted. (Several states require that sites be inspected by someone that the state certifies as a qualified inspector.) One national organization offers two certification programs that would be useful for personnel who are developing and implementing SWPPPs and conducting inspections. These certification programs are called: *"Certified Professional in Erosion and Sediment Control (CPESC)"* and *"Certified Professional in Stormwater Quality (CPSWQ)."* You can find more information on these programs at **www.cpesc.org**

SWPPP Tip!

Consider More Effective BMPs

During inspections, consider whether the installed BMPs are working effectively. If you find a BMP that is failing or overwhelmed by sediment, you should consider whether it needs to be replaced with a more effective BMP or enhanced by the addition of another, complimentary BMP. Ensure that you record such changes in your SWPPP and on your site map.

Chapter 7: Certification and Notification

Take a Closer Look…

Information on the Application or Notice of Intent (NOI)

The NOI provides the permitting authority with pertinent information about your construction site, such as owner/operator information, site location, estimated project start and completion dates, approximate area to be disturbed, information about your SWPPP, receiving waters, and endangered species review certification. An appropriate person who is authorized to represent your organization must sign and verify that the facts contained in the NOI are true and accurate. For businesses, a certifying official is typically a corporate officer, such as a president, vice president, or manager of operations. For municipalities, it's typically a principal executive officer or ranking elected official. Check your permit for exact signature requirements.

In general, the only information you need to submit to the permitting authority is the NOI. EPA and most authorized state agencies do not require you to submit your SWPPP for approval. However, many local governments review and approve at least the erosion and sediment control component of your SWPPP.

What does this mean to me?

There are significant penalties for failing to obtain authorization to discharge or for submitting inaccurate information. If you are the certifying official, make sure you are authorized to discharge before construction activities begin.

SWPPP Tip!

Posting a sign at the construction entrance

EPA and many state general permits require that you post a sign or other notice conspicuously near the main entrance of the construction site. EPA's permit requires that the sign contain a copy of the NOI, the location of the SWPPP, and a contact person for viewing the SWPPP.

Chapter 8: SWPPP Implementation

SWPPP Tip!

Train your staff and subcontractors!

Here are a few key things you will want to cover with each person working on your site:

- Use only designated construction site entrances
- Keep equipment away from silt fences, fiber rolls, and other sediment barriers
- Know the locations of disposal areas, and know the proper practices for trash, concrete and paint washout, hazardous chemicals, and so on
- Keep soil, materials, and liquids away from paved areas and storm drain inlets. Never sweep or wash anything into a storm drain
- Know the location and understand the proper use of spill kits
- Know the locations of your site's designated protection areas. Keep equipment away from stream banks, valuable trees and shrubs, and steep slopes. Clearly mark these areas with signs
- Keep equipment off mulched, seeded, or stabilized areas. Post signs on these areas, too
- Know who to contact when problems are identified!

SWPPP Tip!

Prepare for the rain and snowmelt!

In some areas of the country, construction site operators are required to develop *weather triggered* action plans that describe additional activities the operator will conduct 48 hours before a predicted storm (at least a 50 percent forecasted chance of rain). It is also a good idea to stockpile additional erosion and sediment control BMPs (such as silt fencing, and fiber rolls) at the site for use when necessary.

Chapter 8: SWPPP Implementation

Common Compliance Problems During Inspections

The following are problems commonly found at construction sites. As you conduct your inspections, look for these problems on your site (adapted from MPCA 2004).

Problem #1—Not using phased grading or providing temporary or permanent cover (i.e., soil stabilization)
In general, construction sites should phase their grading activities so that only a portion of the site is exposed at any one time. Also, disturbed areas that are not being actively worked should have temporary cover. Areas that are at final grade should receive permanent cover as soon as possible.

Problem #2—No sediment controls on-site
Sediment controls such as silt fences, sediment barriers, sediment traps and basins must be in place before soil-disturbance activities begin. Don't proceed with grading work out-of-phase.

Problem #3—No sediment control for temporary stockpiles
Temporary stockpiles must be seeded, covered, or surrounded by properly installed silt fence. Stockpiles should never be placed on paved surfaces.

Problem #4—No inlet protection
All storm drain inlets that could receive a discharge from the construction site must be protected before construction begins and must be maintained until the site is finally stabilized.

Problem #5—No BMPs to minimize vehicle tracking onto the road
Vehicle exits must use BMPs such as stone pads, concrete or steel wash racks, or equivalent systems to prevent vehicle tracking of sediment.

Problem #6—Improper solid waste or hazardous waste management
Solid waste (including trash and debris) must be disposed of properly, and hazardous materials (including oil, gasoline, and paint) must be properly stored (which includes secondary containment). Properly manage portable sanitary facilities.

Problem #7—Dewatering and other pollutant discharges at the construction site
Construction site dewatering from building footings or other sources should not be discharged without treatment. Turbid water should be filtered or allowed to settle.

Problem #8—Poorly managed washouts (concrete, paint, stucco)
Water from washouts must not enter the storm drain system or a nearby receiving water. Make sure washouts are clearly marked, sized adequately, and frequently maintained.

Problem #9—Inadequate BMP maintenance
BMPs must be frequently inspected and maintained if necessary. Maintenance should occur for BMPs that have reduced capacity to treat stormwater (construction general permits or state design manuals often contain information on when BMPs should be maintained), or BMPs that have been damaged and need to be repaired or replaced (such as storm drain inlet protection that has been damaged by trucks).

Problem #10—Inadequate documentation or training
Failing to develop a SWPPP, keep it up-to-date, or keep it on-site, are permit violations. You should also ensure that SWPPP documentation such as a copy of the NOI, inspection reports and updates to the SWPPP are also kept on-site. Likewise, personnel working on-site must be trained on the basics of stormwater pollution prevention and BMP installation/maintenance.

Chapter 9: Final Stabilization and Permit Termination

SWPPP Tip!

Stabilize as soon as practicable

EPA's Construction General Permit states that, "stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased."

Figure 16. Seeding is an effective BMP that can be used to temporarily or permanently stabilize disturbed areas.

SWPPP Basics

- SWPPP shall consist of:
  - Project-specific sediment and erosion control measures, using a systematic process based on NPDES permit and any special mitigation requirements

- SWPPP typically prepared during design phase of the construction project
  - The plan shall follow all phases of the project to site final stabilization and permit termination (NOT submittal)

SWPPP Basics

- ITD develops a conceptual SWPPP for the Project Proposal

- Once contract is awarded, ITD and Contractors shall develop a working SWPPP

SWPPP Basics (cont'd)

- Major development steps are:
  (1) site evaluation and design development,
  (2) assessment,
  (3) erosion control and plan design,
  (4) certification and notification,
  (5) construction and erosion control implementation,
  (6) final stabilization and termination (NOT submittal).

- See Chapter 3 of the SWPPP Preparation Guide

SWPPP Basics (cont'd)

SWPPPs are Living Documents!!!

What is Included in a SWPPP?

- Generally, the SWPPP contains:
  - I. Site Evaluation, Assessment, and Planning
  - II. Erosion and Sediment Control BMPs
  - III. Good Housekeeping BMPs
  - IV. Selecting Post-Construction BMPs
  - V. Inspection and Maintenance
  - VI. Recordkeeping and Training
  - VII. Final Stabilization
  - VIII. Certification and Notification

Note: This is considered the 'Narrative' Section of the SWPPP

What is Included in a SWPPP? (cont'd)

SWPPP Appendices

- Appendix A – General Location Map
- Appendix B – Site Maps
- Appendix C – Construction General Permit and Consent Decree
- Appendix D – NOI and Acknowledgement Letter from EPA/State
- Appendix E – Inspection Reports
- Appendix F – Corrective Action Log
- Appendix G – SWPPP Amendment Log
- Appendix H – Subcontractor Certifications/Agreements
- Appendix I – Grading and Stabilization Activities Log
- Appendix J – Training Log
- Appendix K – Delegation of Authority
- Appendix L – Additional Information (i.e, Endangered Species and Historic Preservation Documentation)

Where Can You Find SWPPP Preparation Guidance?

- See handouts:
  - EPA SWPPP Guide and SWPPP Template
  - IDEQ
  - Owner Documents (E.g. Boise, ITD, ACHD, etc.)

EPA SWPPP Examples

- EPA provides SWPPP examples on the web:
  - Medium-Sized (~20-acre) Residential Subdivision
    - Example SWPPP [PDF - 1.57 MB - 73 pp]
    - Appendices [PDF - 9.72 MB - 152 pp]
  - Small Commercial Site (< 5 acres)
    - Example SWPPP[PDF - 1.04 MB - 56 pp]
    - Appendices [PDF - 6.31 MB - 141 pp]

- http://cfpub.epa.gov/npdes/stormwater/swppp.cfm

SWPPP Template Review

- Overview of SWPPP Template
  - Strategies for developing a Site Management Plan
  - Responsibilities
  - Pitfalls
- Detailed discussion in subsequent sections

Notice of Termination

- NOT is notification to EPA that construction is complete and Final Stabilization has been achieved

- You may only submit a Notice of Termination (NOT) after one or more of the following conditions have been met . . .

NOT Requirements

1. Final stabilization has been achieved on all portions of the site for which you are responsible

2. ***Another operator has assumed control according to Appendix G, Section 11.C over all areas of the site that have not been finally stabilized***

ITD NOT Policy

- Typically, ITD allows the Contractor to submit the NOT prior to final site stabilization
- Allows ITD to close out contract upon completion of construction
- ITD requires the Contractor to submit a written request
  - Request must be approved in writing by ITD

What is Final Stabilization?

- ‘Final Stabilization’ is defined in the CGP Appendix A – Definitions
  - Refer to CGP
- 70% of background vegetation
  - Recommend taking before and after pictures
- Final Stabilization by mechanical means
  - EX: Northern Idaho rock mulch

Examples for Final Stabilization

NOT Requirements in CGP

- Give consideration to pending NOTs:
  - Who will continue inspections -- Maintenance or Environmental Inspector?
  - Involve the Environmental Planner in discussion

- Refer to Section 5.2 of CGP

Questions?